



EFFECTIVENESS OF WARM PAD AND ABDOMINAL STRETCHING ON REDUCING DYSMENORRHEA PAIN IN A ADOLESCENT WOMEN IN KENJERAN DISTRICT

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ABSTRACT

Introduction: Pain during menstruation causes discomfort in daily physical activities. The study aimed to compare the effectiveness of the Warm Pad and Abdominal Stretching in reducing the dysmenorrhea pain scale. **Methods:** This study used a pre-experimental study design with a one-group pre-test design. This research was conducted with a total sample of 20 people with dysmenorrhea during menstruation. The sampling technique was carried out using quota sampling using a questionnaire. The statistical test used was the Wilcoxon Test with Pvalue = 0.05. **Results:** The Warm Pad Technique The mean value of the pain scale before the intervention was 5.5 and the average result value after the intervention was 3.3. Meanwhile, for respondents using the Abdominal Stretching Technique, the mean score for the pain scale before the intervention was 5.2 and the mean result after the intervention was 3.4. The results of processing Wilcoxon test data in the Warm Pad Technique obtained a value ($p = 0.021$) < 0.05 . So it can be concluded that the Warm Pad Technique is effective in reducing the pain scale. So it can be concluded that Abdominal Stretching is also effective in reducing the pain scale. **Conclusions:** The results of this study can be an alternative therapy in reducing dysmenorrhea pain which is usually applied when experiencing pain during menstruation so that the risk of pain that is felt can be neutralized.

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INTRODUCTION

Dysmenorrhea is a symptomatic phenomenon during menstruation. Some women feel dysmenorrhea in each menstrual cycle. Dysmenorrhea occurs due to the excessive release of the hormone prostaglandin and results in an increase in uterine contractions resulting in pain during menstruation. Dysmenorrhea is characterized by various symptoms that arise such as pain or pain in the abdomen or hips, crampy pain during menstruation, and is centered on the lower abdomen. (Hamilton, 2018), stated that menstrual pain arises due to dysrhythmic contractions of the myometrium which displays one or more symptoms, ranging from mild pain to severe pain in the lower abdomen, buttocks, and spasmodic pain on the medial side of the thigh. Dysmenorrhea can indirectly interfere with activities and have an impact on the

productivity and quality of life of adolescents. Efforts to reduce pain both pharmacologically and non-pharmacologically include adequate rest, physical activity such as warm compresses, and abdominal stretching exercises. Actions are taken by giving warm compresses so that the need for comfort is met, reducing or relieving pain, and reducing or preventing muscle spasms (Hamilton, 2018). Dysmenorrhea can indirectly interfere with activities and have an impact on the productivity and quality of life of adolescents. Efforts to reduce pain both pharmacologically and non-pharmacologically include adequate rest, physical activity such as warm compresses, and abdominal stretching exercises. Actions are taken by giving warm compresses so that the need for comfort is met, reducing or relieving pain, and reducing or preventing muscle spasms.

The incidence of dysmenorrhea in the world is extensive, that is, on average, more than 50% of women in every country experience it. The percentage of dysmenorrhea in the USA is around 60%, in Sweden is 72% and it is estimated that in Indonesia 55% of teenage girls experience dysmenorrhea. Dysmenorrhea causes some women who experience being unable to do activities (Putri, Dewi, & Yuliani, 2019). Even though the incidence of dysmenorrhea is quite high, there are still many who do not know how to deal with dysmenorrhea. Research in Sweden, 80% of adolescents aged 19-21 years experience dysmenorrhea, 15% limit their daily activities during menstruation and need drugs to reduce dysmenorrhea, 8-10% do not attend or attend school and almost 40% of women's finances and quality of life have no impact good (Rusmiyati, Juwariyah, & Azfila, 2019). A preliminary study conducted by researchers in Kenjeran District on young women found that an average of 20 adolescents who had entered the age of 14-21 years suffered from menstrual pain, 15 respondents and 5 respondents said it was rare. Based on the results of the interviews during the preliminary study conducted, the adolescents already understood the management carried out if they experienced menstrual pain, namely, they did warm compresses using warm water, it was found that 8 respondents, 7 respondents only rested and 5 respondents did not know how to deal with pain during menstruation. Because of that researchers want to examine young women.

Dysmenorrhea occurs due to the reaction of myometrial muscle contractions which result in excess contractions, making the stomach feel cramps or pain, and this pain can be reduced by compressing warm water. A Warm Pad or warm compress is a compress that is done by using a hot jar wrapped in cloth, namely by conduction where there is a transfer of heat from the bladder into the body so that it will cause dilation of blood vessels and will decrease muscle spasms. The use of hot compresses is usually done only locally on certain parts of the body. With the application of heat, the blood vessels dilate. So that it will

MATERIALS AND METHODS

The research design used in this study was pre-experimental with the One Group Pre-test and Post-test approach. Design is a research activity carried out by giving an initial

improve blood circulation in the tissue. In this way, the transport of acids and nutrients to the cells is enlarged and the elimination of excreted substances will be improved. So a better substance exchange process will arise (Maulina, 2022). Warm temperatures can make blood circulation smooth which makes muscles relax.

In addition to reducing menstrual pain, namely doing abdominal stretching exercises. Abdominal stretching is a stretching exercise in maintaining and developing flexibility or flexibility in the abdominal area to reduce the intensity of dysmenorrhea menstrual pain. Abdominal stretching exercises performed when adolescents experience menstrual pain by moving the pelvis, chest knee position, and chest breathing exercises can be useful for reducing menstrual pain. And develop flexibility in the abdominal area to reduce pain intensity during dysmenorrheal (Wuriani, Erwhani, Surtikanti, & Hidayah, 2018). Dilakukan setiap pagi atau sore hari. Baik dilakukan 3 kali dalam seminggu selama 15 – 30 menit. Do it every morning or evening. Either done 3 times a week for 15-30 minutes. Teenagers who have normal menstrual cycles (28-30 days) can do abdominal stretching exercises 1 day before menstruation and for teenagers who have abnormal menstrual cycles, it can be done the 3rd week after the previous menstruation for 4-5 times a week. Doing abdominal stretching exercises will produce endorphins (Nursanti, 2018). This study aimed to use either a Warm Pad or Abdominal Stretching to help reduce and treat dysmenorrheal (Ramayan Prasad Kushwaha, Gajendra Prasad Rauniar & Dilli Sher Rai, Pramila Sinha, Sarita Sitaula, 2021).

Based on the above phenomena accompanied by the results of related research, and supported by the results of the preliminary study, the researchers were interested in knowing the comparison of the effectiveness of Warm Pads and Abdominal Stretching in reducing the pain scale of dysmenorrhea. So the researcher will take the title: "Effectiveness of Warm Pad and Abdominal Stretching on Reducing Dysmenorrhea Pain in Young Women" in Kenjeran District.

test (pre-test) before being given treatment, and giving a final test (post-test) after being given treatment. This research was conducted at Balai RW 001 Kelurahan Tanah Kali Kendidnding, Kenjeran District, Surabaya City.

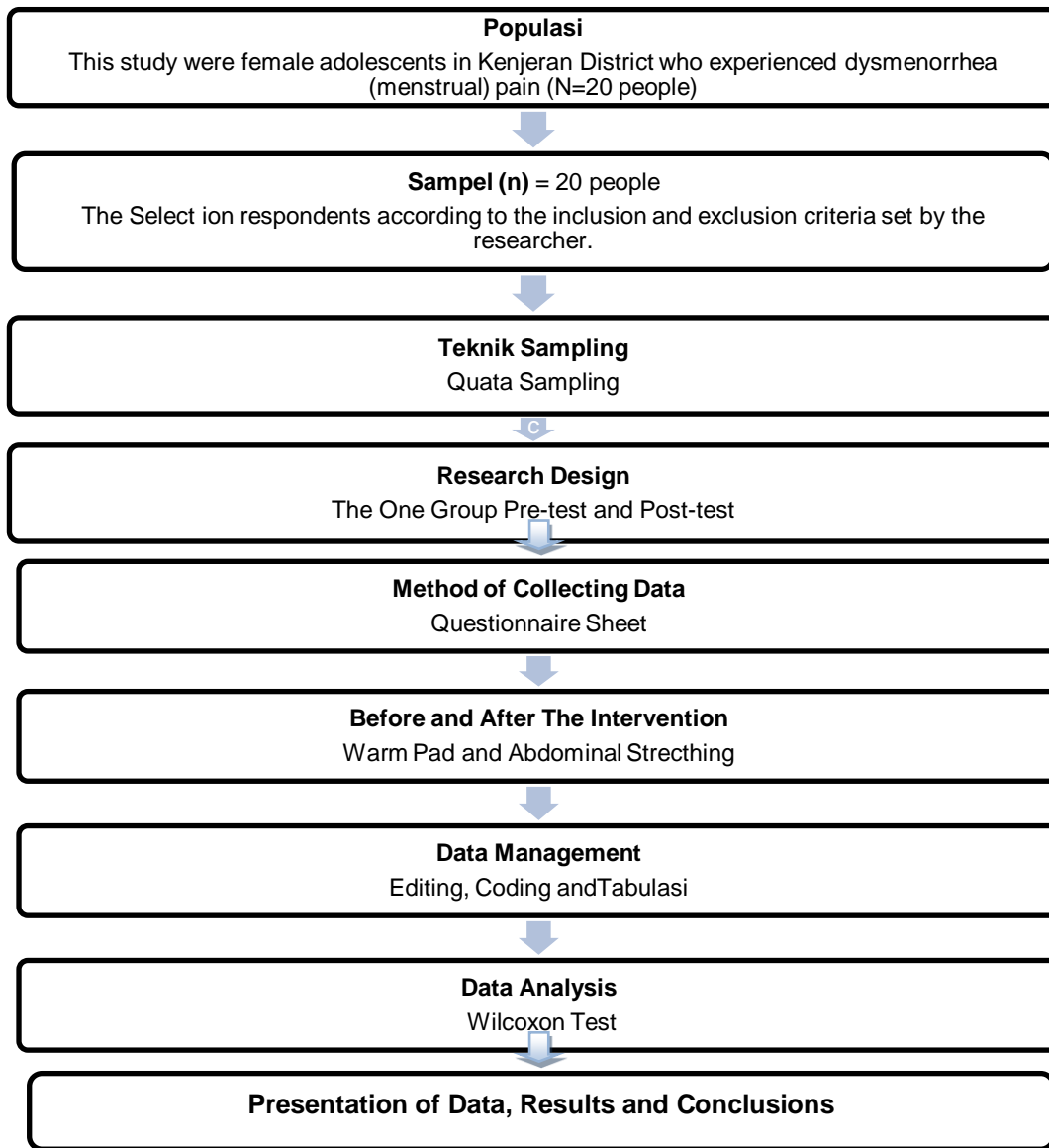


Figure 1. Research Framework

Figure 1 shows that the sampling method in this study used Non-Probability Sampling with the Quota Sampling Technique, which is a technique for collecting samples by selecting samples that meet the criteria. Data collection used questionnaires before and after the intervention with Warm Pad and Abdominal

Stretching. After the intervention, the data will be managed and data analyzed using the Wilcoxon Signed Rank Test with a significance level of 95% ($\alpha = 0.05$) to be able to determine whether there are differences in the research variables and present the results of the research that has been carried out.

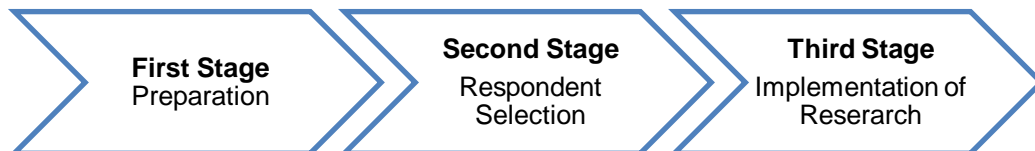


Figure 2. Stages of the Data Collection Process
In Figure 2. The stages of the data collection process will be divided into 3 stages including:

1. First stage (Preparation)

At this stage, the researcher conducted preliminary examinations and determined the study population, namely adolescents with dysmenorrhea in the Tanah Kali Kedinding Village, Kenjeran District, Surabaya City.

2. Second stage (Respondent selection)

The research was conducted by selecting samples from among the population according to the research. The research sample was determined by selecting respondents according to the inclusion and exclusion criteria set by the researcher. The sample in this study were female adolescents in Kenjeran District who experienced

dysmenorrhea (menstrual) pain, totaling 20 people who met the criteria determined by the researcher, namely:

- a. Utrid adolescents who experience dysmenorrhea (menstrual) pain
- b. Utrid adolescents who have no history of using pharmacological therapy during menstrual pain
- c. Utrid teenagers who are willing to be respondents

The number of samples was divided into 2 groups with different treatments. The first sample group with warm pad intervention (warm compresses), while the second sample group with abdominal stretching intervention. The researcher asked for the respondent's consent to participate in counseling activities by filling out an informed consent form.

3. Third Stage (Implementation of research)

The research was started by filling out the pre-test with the help of the researcher who explained how to fill out the questionnaire to the respondents. Researchers asked respondents to fill out a questionnaire that had been given completely and honestly. After filling out the questionnaire, the researcher gave interventions to the respondents. The researcher asked the respondent to carry out the intervention that had been given during the specified time limit. After that, the researcher conducted a post-test to find out the changes after being given the intervention. Researchers must pay attention to the completeness of filling out the questionnaire, incomplete answers must be clarified back to the respondent to be completed.

RESULTS

The results of the research were 20 respondents which were carried out at Balai RW 001 Tanah Kali Kendinding Village, Kenjeran District, Surabaya City. The research media is education and demonstrations for adolescents who experience dysmenorrhea.

Table 1. Characteristics of Female Young Female Research Respondents in Kenjeran District

No	Characteristics	Warm Pad		Abdominal Stretching	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	Age				
	16-18 year	2	20%	3	30%
	19-21 year	8	80%	7	70%
	Total	10	100%	12	100%
2	Menarche				
	11-15 year	10	100%	10	100%
	<11-15 year	0	0%	0	0%
	>11-15 year	0	0%	0	0%
	Total	10	100%	10	100%
3	Menstrual Cycle				
	21-35 day	10	100%	10	100%
	<21-35 day	0	0%	0	0%
	>21-35 day	0	0%	0	0%
	Total	10	100%	10	0%
4	Dysmenorrhea Pain				
	Every Menstruation	8	80%	7	70%
	Seldom	2	20%	3	30%
	Total	10	100%	10	100%

Based on table 1 shows that in the Warm Pad group with the characteristics of the research, respondents, the most age was 19-21 years, namely 8 respondents (80%), and the majority of menarche at the age of 11-15 years obtained 10 respondents (100%) and the menstrual cycle reached 21-35 days with 10 respondents (100%), most of the dysmenorrhea pain is felt every menstruation, the results are 8 respondents (80%). In the Abdominal Stretching group, with the

characteristics of the research respondents, most of the ages were 19-21 years, namely 7 respondents (70%), the majority of menarche at the age of 11-15 years found 10 respondents (100%) and menstrual cycles reached 21-35 days with 10 respondents (100%), the majority of dysmenorrhea pain is felt every menstruation, the results are 7 respondents (70%).

Table 2. Distribution of Respondents' Observation Results Based on the Dysmenorrhea Pain Scale

No	Warm Pad (Kompres Hangat)			Abdominal Stretching		
	Pre	Post	Difference	Pre	Post	Difference
1	6	2	-4	5	4	-1
2	6	4	-2	5	2	-3
3	5	3	-2	6	4	-2
4	6	5	-1	6	5	-1
5	6	4	-2	6	3	-3
6	4	2	-2	4	2	-2
7	5	2	-2	4	2	-2
8	5	2	-3	5	4	-1
9	6	4	-2	5	4	-1
10	6	5	-1	6	4	-2
Mean	5,5	3,3	-2,1	5,2	3,4	-1,8

Based on Table 2, the results of research conducted using the Warm Pad technique in the pre-test and post-test yielded an average of 5.5 and 3.3. And the difference has the highest score, namely 4. Meanwhile, in studies using the Abdominal Stretching technique in the pre-test and post-test, the mean was 5.2 and 3.4. And the difference has the highest value, namely 3.

The researcher used the Wilcoxon test to see the difference in the decrease in dysmenorrhea pain scale from the two techniques, but before continuing the test the researcher will do a normality test to find out whether the data is normally distributed or not.

Table 3. Distribution of Wilcoxon Test Results in Warm Pad and Abdominal Stretching Techniques Before and After Intervention

			N	Mean	P
Technology Warm Pad	Before Intervention		10	5,5	0,021
	After Intervention		10	3,3	0,021
Abdominal Stretching	Before Intervention		10	5,2	0,000
	After Intervention		10	3,4	0,000

Based on table 3, it shows that of the 10 respondents to the Warm Pad Technique, the average result value of the pain scale before the intervention was 5.5 and the average result value after the intervention was 3.3. Meanwhile, for respondents using the Abdominal Stretching Technique, the mean score for the pain scale before the intervention was 5.2 and the mean result after the intervention was 3.4. The results

of processing Wilcoxon test data in the Warm Pad Technique obtained a value ($p = 0.021$) < 0.05 . So it can be concluded that the Warm Pad Technique is effective in reducing the pain scale. The results of Wilcoxon test data processing on Abdominal Stretching obtained a value ($p = 0.000$) < 0.05 . So it can be concluded that Abdominal Stretching is also effective in reducing the pain scale.

DISCUSSION

This study was designed to compare the effectiveness of Warm Pads and Abdominal Stretching to reduce the dysmenorrhea pain scale. Under the research objectives, the following matters will be discussed:

The Effectiveness of a Warm Pad in Reducing Dysmenorrhea Pain

In Table 2 it is found in the Warm Pad technique group with pre-test and post-test mean values of 5.5 and 3.3 and the largest post-test difference value is 4. The use of Warm Pads is usually done only locally on certain

parts of the body. Pain due to muscle spasms responds well to heat because heat dilates blood vessels and increases local blood flow (Hasian Leniwita, 2019). Warm pads relieves pain by removing inflammatory products, such as bradykinin, histamine, and prostaglandins, which produce localized pain. Heat also stimulates nerve fibers that close the pain gates so that the transmission of pain impulses to the spinal cord and brain can be inhibited (Indah Luthfia Wahyuni, Susilawati, 2018). The procedure for dry warm pads using jars is preparing the equipment, washing hands, then

preheating the hot pad using stiffness, increasing muscle relaxation and reducing pain due to spasms or stiffness, increasing flow and giving a local warm feeling, increasing movement of wastes and nutrients, dry heat has a lower risk of causing burns than moist therapy and does not cause skin lacerations, the dry heat can retain temperature longer because it is influenced by evaporation (Asmita dahlan, 2016).

In the research, it was found that the Warm Pad greatly influences the decrease in the level of dysmenorrheal pain. According to researchers, Warm Pad uses local warm temperatures that can cause physiological effects. The Warm Pad can be used in the treatment of pain and relaxes tense muscles. The Warm Pad is done with a bottle filled with warm water with a conduction temperature of 37-40 C where heat transfer occurs from the bottle to the stomach so that the compressed stomach becomes warm. This causes dilation of blood vessels in the part that is experiencing pain and increases blood flow in that area. A warm feeling in the abdomen can increase psychological relaxation and a sense of comfort so that the presence of comfort can reduce the response to the pain that was originally felt.

Effectiveness of Abdominal Stretching on Reducing Dysmenorrhea Pain

In Table 2 it is found in the Abdominal Stretching technique group with an average pre-test and post-test value of 5.2 and 3.4 and the difference has the highest value of 3. Stretching exercises aim to help increase oxygenase or the process of exchanging oxygen and carbohydrates in cells and stimulate blood flow. Blood lymph system to increase muscle flexibility by restoring the muscles and can maintain their function correctly. Abdominal stretching exercises can reduce pain because abdominal stretching exercise is a relaxation techniques (Hasian Leniwita, 2019).

Based on the results of the analysis, it was found that the abdominal stretching exercise technique is effective for reducing dysmenorrheal pain in adolescents because the abdominal stretching exercise technique is carried out to increase blood perfusion to the uterus and relax the uterine muscles so that anaerobic metabolism does not occur (such as glycolysis and glycogenolysis) which will produce lactic acid, where if there is a buildup of lactic acid it will cause fatigue/pain/cramps in the muscles (Sutrisni, Sri Lestari, Arsy Widyatriastuti, Gunawan, 2022). In addition, doing abdominal stretching exercise techniques can release endorphins in the body,

where the function of endorphins is as a sedative and able to reduce desmin or pain (Alpia Rahmawati Suganda, Tatu Septiani N, 2021).

This hormone can function as a natural sedative that is produced in the brain which can increase the feeling of comfort and reduce pain during endometrial contractions. When doing abdominal stretching exercises the brain will produce endorphins so that when peripheral pain neurons send signals to the synapses, synapses occur between peripheral pain neurons and neurons that go to the brain where substance P should conduct impulses. At that time, endorphins will block the release of substance P from sensory neurons, so that the transmission of pain impulses in the spinal cord becomes obstructed, so that primary dysmenorrhea decreases.

Analyzing Comparison of Effectiveness Between Warm Pad and Abdominal Stretching in Reducing Dysmenorrhea Pain

Based on Table 3, it was found that of the 10 respondents to the Warm Pad Technique, the average result value of the pain scale before the intervention was 5.5 and the average result value after the intervention was 3.3. Meanwhile, for respondents using the Abdominal Stretching Technique, the mean score for the pain scale before the intervention was 5.2 and the mean result after the intervention was 3.4. The results of processing the paired sample t-test data in the Warm Pad Technique obtained a value ($p = 0.021$) < 0.05 . So it can be concluded that the Warm Pad Technique is effective in reducing the pain scale. The results of processing the paired sample t-test data on abdominal stretching obtained a value ($p = 0.000$) < 0.05 . So it can be concluded that Abdominal Stretching is also effective in reducing the pain scale. Researchers argue that if one of the Warm Pads and Abdominal Stretching is done when experiencing menstrual pain, then the pain scale will decrease. It's the same as doing Abdominal Stretching, if it's done when experiencing dysmenorrhea pain it can reduce the pain scale.

CONCLUSIONS

The results of the research and the results of testing on the discussion carried out by the researcher can be concluded as follows: Warm Pad is effective in reducing the pain scale for young women who experience dysmenorrhea pain seen from the results of the pre-test and post-test which have decreased with the result p-value = 0.021 ($p < 0.05$). Abdominal Stretching is effective in reducing

the pain scale for young women who experience dysmenorrhea pain as seen from the results of the pre-test and post-test which decreased with a p-value = 0.000 ($p = <0.05$). So there is no significant difference in effectiveness between Warm Pad and Abdominal Stretching on the pain scale for young women who experience dysmenorrhea pain.

The results of this study can be an alternative therapy in reducing dysmenorrhea pain which is usually applied when feeling pain during menstruation so that the risk of pain that is felt can be neutralized.

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